

Statement of

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On

Maritime Domain Awareness and Vessel Tracking

Before the

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Committee on Homeland Security

Subcommittee on Border, Maritime, and Global Counterterrorism

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Good afternoon Madame Chairwoman and distinguished members of the Subcommittee. I am Steve Dryden, Chief Executive Officer of The Mariner Group. It is an honor to appear before you today to discuss Maritime Domain Awareness (MDA) and Vessel Tracking.

My company, The Mariner Group, has been working with the US Coast Guard over the past three years to significantly improve MDA and response throughout the nation. My goals today are to inform you of the overall project mission, the challenges encountered in gaining true MDA, and lastly, to urge support for full funding of the Safe Port Act of 2006.

As you know, the Safe Port Act of 2006 directs the Coast Guard to establish interagency operations centers for enhancing port security at locations around the nation. The Mariner Group is working with the Coast Guard through their Visualization Tools for Situational Awareness and Emergency Response, or "Viz Tools", for Sector Command Centers to help in this effort. As part of this project, Mariner's software application, CommandBridge, has been employed as the primary underlying technology to increase Maritime Domain Awareness at the Sector Command Center - Miami. I would like to take a few minutes to share with you what I believe is an important aspect of the Coast Guard's efforts to ensure the safety and security of U.S. waters.

Of the many challenges in achieving MDA, none are more important than gaining Actionable Situation Awareness. "Situation awareness is the perception of elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future."<sup>1</sup> In a Coast Guard command center, or any highly complex border, infrastructure, or transportation environment, watch standers must maintain an understanding of what is going on at all times while simultaneously working to predict and prevent ever changing threats.

The work of this committee, and the government as a whole, has allowed technology to be applied to many critical issues in maritime or other homeland security areas, and more and more data is being generated to help users make decisions. As examples, technologies including RADAR, cameras, Automatic Identification Systems, and perimeter detection systems have been implemented throughout our ports. But an unintended consequence of massive amounts of data is that users are overloaded with that data, making it harder to focus on the most important information. Simply put, it's harder to find the needle-in-the-haystack when the haystack keeps getting larger.

The goal of the Viz Tools project is to inform decision makers and enable them to take action to prevent incidents and/or appropriately coordinate incident response. The program places strong emphasis on providing operational end-users with the technology and capabilities to detect and prevent terrorist attacks, counteract illegal activities, and to help manage response related actions.

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<sup>1</sup> Designing for Situation Awareness: An Approach to User-Centered Design by Mica R. Endsley, Betty Bolte, and Debra G. Jones

The project was funded by the Department of Homeland Security Science & Technology Directorate (DHS S&T) in collaboration with the Coast Guard R&D Center and Pacific Northwest National Labs (PNNL). The system is currently operational as a prototype in District Seven at the Coast Guard's Sector Command Center in Miami. Viz Tools uses advanced methods to collect and fuse data, better analyze the data to create knowledge, create more effective ways to visualize and act upon the knowledge, and disseminates information internally to the Coast Guard and their appropriate partners.

Viz Tools' overall project objectives are to:

- Develop and maintain an accurate situational picture;
- Assimilate relevant sensor data and couple it with amplifying information;
- Identify threats rapidly without the need for extensive manpower;
- Comprehend the nature and gravity of the emerging threat;
- Maximize Blue Force Assets, operational capacity, and readiness to offset the threat; and
- Plan and manage the stages of emergency response.

Prior to Viz Tools, watch standers had to manually achieve situation awareness by monitoring information from numerous sources such as RADAR screens, harbor pilot websites, messaging, commercial information sources, weather systems, internal Coast Guard systems, etc.

Gaining true actionable situation awareness requires advanced technology that can focus the user on meaningful, relevant information. Just displaying large amounts of data not only lacks benefits but can also contribute to sensory overload negatively affecting the situation. Viz Tools not only fuses information from many diverse sources, it also analyzes the combined information for anomalies and then presents meaningful, actionable knowledge without the ancillary clutter. These capabilities keep the watch stander focused on what's important while delivering the right information to the right person at the right time.

Viz Tools enables the Coast Guard, other law enforcement agencies, and Port Partners the ability to understand their current situation by providing them the most relevant, actionable information and implementing the most appropriate security protocols. Currently envisioned, Viz Tools will promote the ability to leverage current technology programs and allow easy adaption of additional technologies as port security needs evolve.

Let me give you an illustration: If a container ship is heading for the Port of Miami, Viz Tools tracks its progress. Before it has entered the area, Viz Tools analyzes all relevant information, assessing anomalies, safety, and terrorist potential. Information from the Coast Guard, port authorities, harbor pilots, Lloyd's Register, and other vital sources pour in, creating a federated view. In addition, we will be working to incorporate information on cargo sensitivity with relevant information collected about the vessel.

Correlating and verifying all information, Viz Tools can apply anomaly detection to monitor information such as changes in ownership, manifest discrepancies, inconsistent

arrival information, and other intelligence as it becomes available. These anomalies automatically display on the user's screen as an alert that necessitates immediate action. In addition, Viz Tools currently allows the Coast Guard to maintain operational control such as alerting the watch stander that a vessel operating under restriction has begun to move. Based upon the situation, the watch stander can use Viz Tools to automatically contact the appropriate resource to instigate an intervention, detaining the ship until it achieves an all-clear status. Over time, Viz Tools will evolve to incorporate changing security scenarios by assembling a growing portfolio of alert circumstances and therefore continuously increasing port security. While we are making great strides, critical gaps still need to be addressed. I would submit that certain areas of developing regional maritime security should properly be incorporated into the interagency command centers, including:

1. The integration of cargo and vessel information into Viz Tools.
2. Better sensor technology installed to track small boats and non-cooperative vessels that may attempt to spoof or turn off required AIS transponders. The current state of technology in today's ports falls short in their ability to track non-cooperative vessels and small boats. For example, a vessel may be deemed non-cooperative if its Automatic Identification System (AIS) tracking isn't turned on. Small boats that don't have AIS tracking technology are also a potential threat. Emerging projects such as DHS S&T / USCG R&D Center's Automated Scene Understanding project offers the potential to mitigate this shortfall.
3. Foster a better sense of coordination with local law enforcement and emergency responders to coordinate security and incident response.
4. Ability to conduct longer range vessel tracking of transits.
5. Integrate information and response related activities related to high-interest, critical facilities that are not regulated by the Coast Guard that are on, adjacent to, over, or under, U.S. navigable waters.

In conclusion, I would also recommend that you and your committee provide full funding for the Safe Port Act requirements. The President's Budget recommends only minimal funding for the Command/21 program. Fortunately, with your leadership Madame Chairman and Congressman Bilirakis, the House has chosen to include \$40 million dollars for the Command/21 program, and the Senate has proposed \$60 million in 2008 funding. It will be critical to ensure that we do not fall behind another year on this program. In my view, facilitating regional maritime security coordination and response may be the most important and most difficult challenge that we face in the larger area of port security.

Thank you very much for the invitation to speak before you today and for giving me the opportunity to talk to you about Maritime Domain Awareness and Vessel Tracking I'm proud to be associated with this project and am happy to answer any questions you may have.

SUPPLEMENTAL PAGE

Topic: Maritime Domain Awareness and Vessel Tracking

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